

Truly Mobile Platforms

Jim Chapman

**Vice President of Sales and Marketing
Transmeta Corporation**

Rethinking the Microprocessor ...

Creating a New World of Mobility

TRANSMETA 

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Agenda

- ◆ **Transmeta Corporation**
- ◆ **Truly Mobile Platforms**
- ◆ **Mobile Platform Processors**
- ◆ **Crusoe™ Processor Solutions**

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Transmeta Corporation

- ◆ **Microprocessor Technology Innovator**
- ◆ **Changing the Rules**
- ◆ **HW / SW Solutions for Platform OEMs**
- ◆ **Mobile Platform Architecture Innovator**
 - ◆ **Mobile Linux IA and Thin Clients**
 - ◆ **Ultra-Light Windows Notebooks**
 - ◆ **Industry Standards**
 - ◆ **Reference Designs**
 - ◆ **Full Integration Services**

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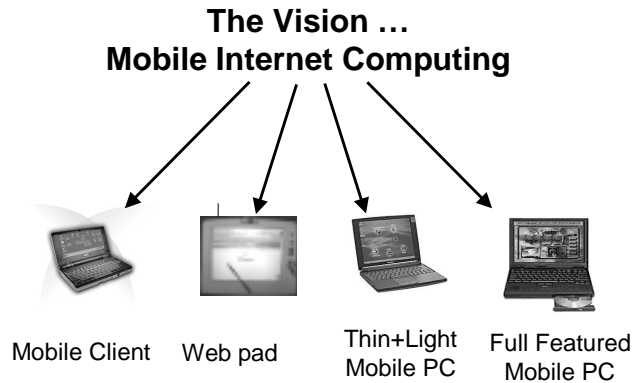
Truly Mobile Platforms

- ◆ **Untethered Operation**
 - ◆ **Battery-Powered Operating Mode**
 - ◆ **Wireless Communication**
- ◆ **Full Internet Experience**
 - ◆ **Compatibility**
 - ◆ **Performance**
 - ◆ **Battery Life**

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Truly Mobile Platforms



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Mobile Platform Processors

- ◆ **The Problem**
 - ◆ Complexity of Existing Architectures
 - ◆ x86 Compatibility
- ◆ **Dilemma**
 - ◆ New CPU Might Solve Complexity Problem
 - ◆ New CPU Won't Have Required Software
 - ◆ Software Compatibility Requires x86
 - ◆ x86 Requires Complexity

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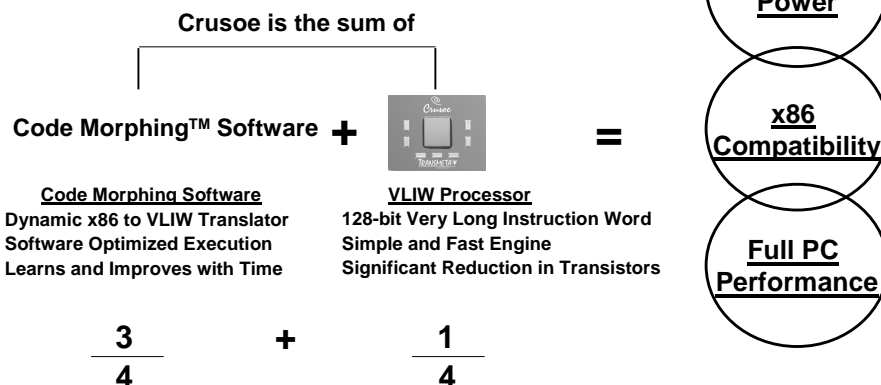
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Crusoe™ Mobile Solution

- ◆ **Software-Based Microprocessor**
 - ◆ **Combined Hardware + Software Solution**
 - ◆ **Simpler Hardware - Reduced Complexity**
 - ◆ **Simpler Design - Shorter Design Cycle**
 - ◆ **Smaller Die - Lower Cost**
 - ◆ **Less Transistors - Lower Power**
 - ◆ **No Backward Compatibility Problems**
 - ◆ **Adaptive Software Can Learn**
- ◆ **The First Smart Microprocessor**

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Crusoe™ Mobile Solution



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Crusoe™ Mobile Solutions



TM5400

Lightweight Notebook Computers
Microsoft Windows

700 MHz
400 KB Cache
1 Watt
x86 Compatible



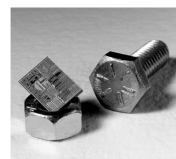
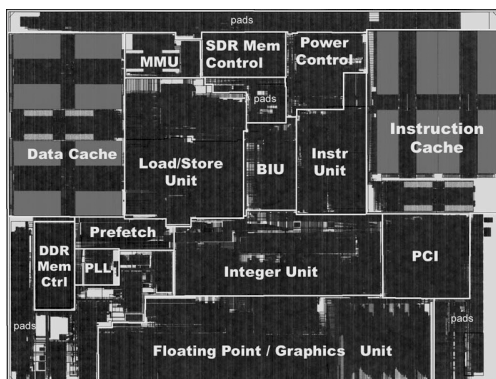
TM3120

Mobile Internet Appliances
Mobile Linux

400 MHz
108 KB Cache
1 Watt
x86 Compatible

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TM3120 / Mobile Linux OS for Mobile Internet Devices

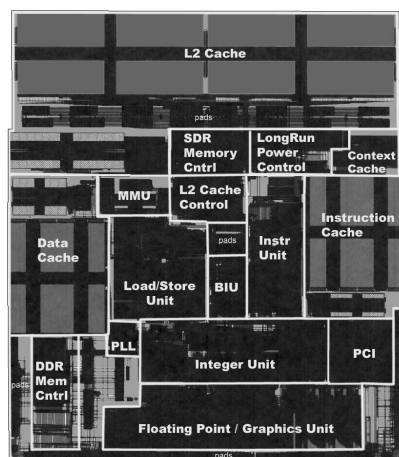


	TM3120
Frequency Range	366-400 MHz
L1 Cache	96KB
L2Cache	
Main Memory	SDRAM
Upgrade memory	
North Bridge	Integrated
Package	474 BGA
Fab Partner	IBM
Process Technology	22u
Die Size	77mm
Sample	Now
Production	Now

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TM5400 / Windows OS for Ultra-Light Mobile PCs



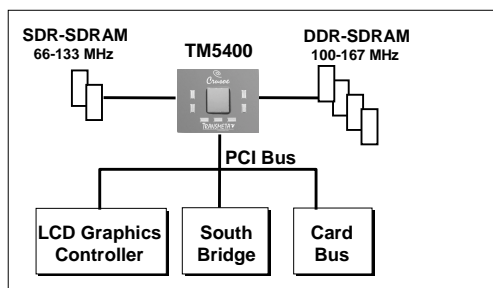
	TM5400
Frequency Range	600-700 MHz
L1 Cache	128K
L2Cache	256K
Main Memory	DDR-SDRAM
Upgrade memory	SDRAM
North Bridge	Integrated
Package	474 BGA
Fab Partner	IBM
Process Technology	.18u
Die Size	73mm
Sample	Now
Production	Mid 2000

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Crusoe™ Processor System

VLIW Processor Interfaces to Standard PC Components

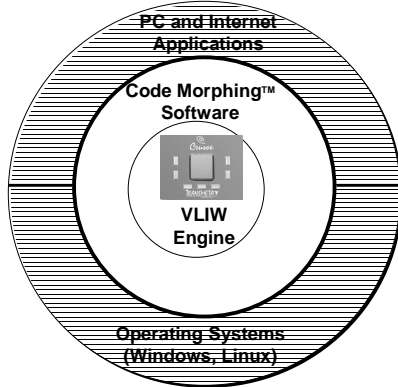
- ◆SDRAM and DDR-SDRAM Memory
- ◆Standard PCI I/O Devices and Peripherals
- ◆Improved System Architecture - Better Performance / Lower Power



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Crusoe™ Microprocessor Architecture



- ◆ **Compatible with All x86 OS and Applications**
- ◆ **Code Morphing Software**
 - ◆ "Morphs" x86 to VLIW
- ◆ **High Speed / Low Power VLIW Engine**
- ◆ **VLIW + Code Morphing = x86 Compatible Solution**

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Windows is a Registered Trademark of Microsoft Corporation, Linux is a Trademark of Linux International

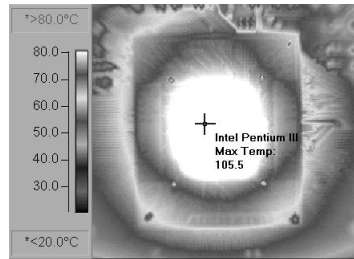
Crusoe™ Die Size

**Code Morphing
Software
Results in a
Significantly
Smaller Die Size**

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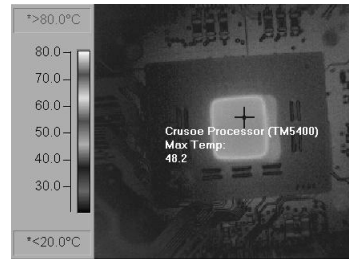
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Mobile Processor Thermal Comparison



**Pentium III
Playing DVD**

**105.5° C
221.9° F**



**Crusoe Processor
Playing DVD**

**48.2° C
118.8° F**

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LongRun™ Adaptive Power Management Technology

- ◆ **A New Power Management Invention**
- ◆ **Dynamically Scales Processor Voltage and Frequency Based on Workload Requirements**
- ◆ **Maximizing Battery Life While Delivering Performance on Demand**

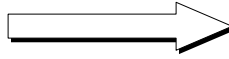
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Crusoe™ Mobile Internet Processor Solutions



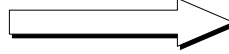
**Crusoe Processor
Model TM5400**



Ultra-Light PCs



**Crusoe Processor
Model TM3120**



**Mobile Internet Devices
Web Pads and Handhelds**

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Crusoe™ Mobile PC Market

- ◆ **Fastest Growing Segment**
- ◆ **OEMs #1 Focus**
- ◆ **Area of Greatest Innovation**

Ultra-Light Mobiles



3 lb. Mobile PC

- ◆ **1 Spindle**
- ◆ **HDD**
- ◆ **Windows**



4 lb. Mobile PC

- ◆ **2 Spindle**
- ◆ **HDD and DVD**
- ◆ **Windows**

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Crusoe's Benefits for Ultra-Light PC's

- ◆ Highest Performance - 700 MHz
- ◆ Highest Quality Multimedia Experience with LongRun™ Technology
- ◆ Longest Battery Life in All Applications
- ◆ Better Thermal Characteristics
 - ◆ Easier OEM Design Implementation
 - ◆ Lighter Weight
 - ◆ Lower costs

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Mobile Internet Devices

- ◆ Market Needs a Standard
- ◆ Linux OS the Logical Choice
- ◆ Low Power Processor Required
- ◆ x86 Compatibility Required

Mobile Internet Devices



2 lb. Web Pad 2 lb. Handheld

- ◆ No Spindles (Drives)
- ◆ Flash Card Storage
- ◆ Mobile Linux OS
- ◆ \$500 - \$999

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Crusoe Platform Benefits for Mobile Internet Devices

- ◆ **Lowest Power x86 Compatible Processor**
- ◆ **Mobile Linux on Crusoe Platform Today**
 - ◆ **New Power Management Features**
 - ◆ **ROM-Based Mobile Linux**
- ◆ **Performance for the Full Internet Experience**

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**“If the old paradigm was
waste watts and transistors ...
the new paradigm will be
waste bandwidth and save watts.”**

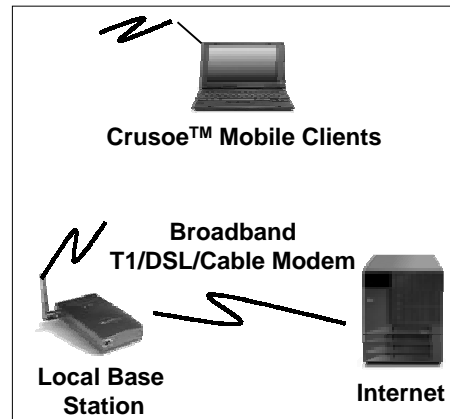
George Gilder

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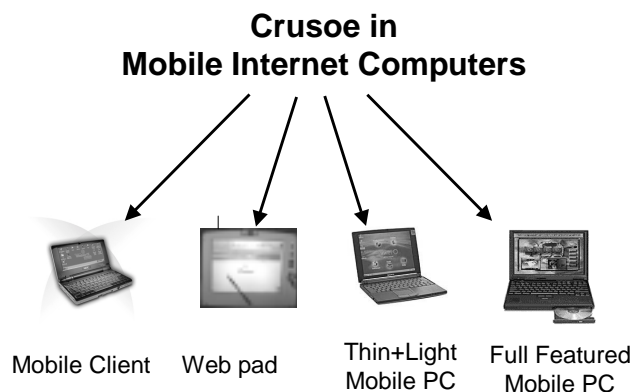
Wireless Mobile Client Typical Deployment

- ◆ Broadband to Home and Office Will be Pervasive
- ◆ Crusoe Wireless Clients Will Delight Users
- ◆ How BIG is this market?



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Crusoe™ Product Family Spans the Range of Truly Mobile Platforms



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